University of Idaho
College of Agriculture

Cooperative Extension Service
Agricultural Experiment Station

Current Information Series No. 449

September 1978

Buying and Selling High-Moisture Grain

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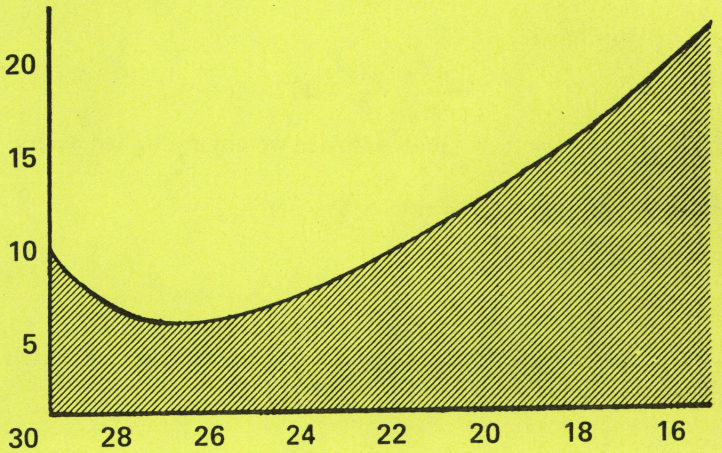
Feeding high-moisture grain to livestock has become increasingly popular in recent years, helped by improved mechanization systems for harvesting and feeding and by the increased costs of drying grains. In Idaho, both corn and barley are adapted to high-moisture harvesting and storage.

High-moisture grains have several management, economic and nutritional advantages as livestock feeds. These advantages include improved feed efficiency, reduced energy needs and earlier harvest. Earlier harvest in turn results in a longer harvest period and more time to complete fall plowing. For corn, the earlier harvesting means reduced field losses (Fig. 1) and increased use of corn stalks by beef cattle. High-moisture handling may also allow use of higher-yielding, later-maturing corn varieties.

The major disadvantage is loss of market flexibility because ensiled high-moisture grains must be used as livestock feed. Another disadvantage is that storage losses may be higher than for dry grain if proper ensiling conditions are not followed.

Fig. 1. Corn harvesting losses as a percentage of moisture content.



Harvesting

For high-moisture handling and storage, both corn and barley should be harvested when moisture content of the grain is 30% or lower. At this stage, the grain of both crops is physiologically mature and the starch accumulation in the kernel is at its maximum. This is also the time when maximum feed value of the grain has been reached.

Storing and Processing

Any structure commonly used to ensile high-moisture feeds can be adapted to store high-moisture grains. All silage structures must be in good condition to reduce the possibility of storage losses.

While oxygen-limiting or sealed silos can be used to store whole grains satisfactorily, high-moisture corn and barley generally should be rolled or ground before ensiling to insure adequate packing and to exclude oxygen. High-moisture barley should always be rolled or ground before feeding. Cattle fed whole high-moisture barley gain less and require more feed per pound of gain than cattle fed rolled high-moisture barley. Whole high-moisture corn can be fed satisfactorily if the total ration contains less than 15% roughage. When rations contain more than 15% roughage, high-moisture corn should be rolled before feeding.

Calculating A Fair Price

Most high-moisture grain is grown by livestock producers for livestock feed, or grown as a cash crop and sold at harvest to livestock and dairy producers. Pricing high-moisture grain often leads to confusion and inaccuracies. To establish a market price that is fair to both buyer and seller, both parties should specify and agree on:

1. A dry grain price. In most cases, grain with 87% dry matter or 13% moisture is considered the dry grain base.
2. A system for taking samples of the grain at harvest.
3. A method of determining moisture content. This may mean selecting a commercial feed-testing laboratory to determine the moisture content.

4. A location for weighing the grain.
5. Adjusting high-moisture grain harvest weights to a dry grain basis using the following formula:

Adjusted weight =

$$\frac{100\% - \%\text{ moisture in grain at harvest} \times \text{harvest weights}}{87\%\text{ (dry grain base)}}$$

6. Calculating the purchase price for a volume of grain using the adjusted weight and the dry grain price.

Following is a step-by-step example showing how to determine the adjusted weight and the final price for high-moisture grains:

1. Dry grain price set at $4 per cwt or $80 per ton.
2. Grain samples analyzed for moisture at a commercial laboratory. For this example, assume grain is 25% moisture or 75% dry matter.
3. Grain samples taken from each truckload.
4. Buyer and seller agree that each truckload be weighed on a commercial scale. (Example, 200 tons total weight as harvested.)
5. Total harvest weight is adjusted to dry base.

Adjusted weight =

$$\frac{100\% - 25\%\text{ harvest moisture} \times 200\text{ tons}}{87\%\text{ (dry grain base)}}$$

Adjusted weight =

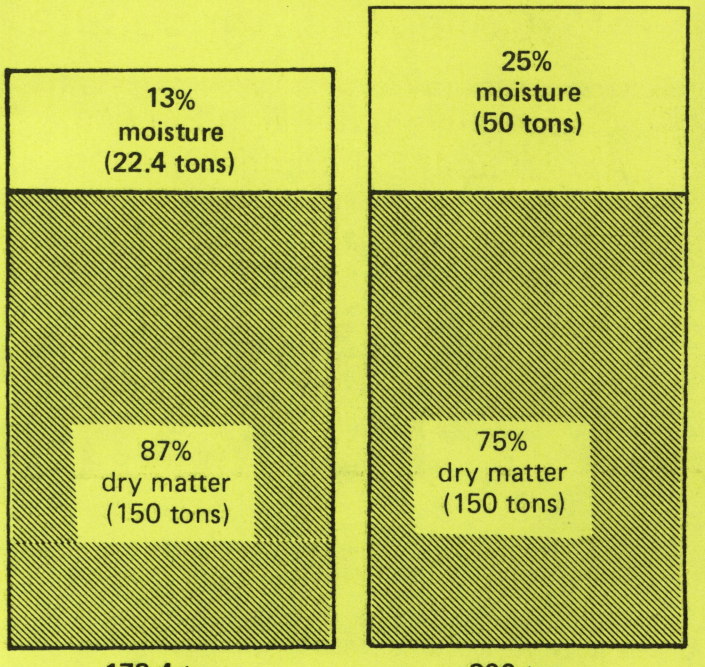
$$\frac{75\% \times 200}{87\%} = 172.4\text{ tons}$$

6. Total price then equals adjusted weight multiplied by dry grain price, or:

Total price = 172.4 tons x $80 per ton

Total price = $13,792

Fig. 2. Adjusted dry matter weight for harvested tonnage and adjusted tonnage grains.



172.4 tons adjusted weight 87% dry matter

200 tons field weight 75% dry matter

Buying and selling high-moisture grains on adjusted weight basis is an accurate method that is fair to both the buyer and seller. Actual dry matter contained in the harvested tonnage and adjusted tonnage is the same (Fig. 2). Using this method, the cost per pound of dry matter remains the same, regardless of moisture content.

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